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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,193	09/04/2001	Hideaki Yamanaka	110538	1200
25944	7590	11/30/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			RICKMAN, HOLLY C	
			ART UNIT	PAPER NUMBER

1773

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,193

Applicant(s)

YAMANAKA ET AL.

Examiner

Holly Rickman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/2/05, 9/9/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 24, 28, 29 and 31-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 24, 28-29, 31-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The rejection of claims 1-13, 24, 26, 28-29, and 31-35 under 35 U.S.C. 112, first paragraph, is withdrawn in view of Applicant's amendments.
2. The rejection of claims 29 and 31 under 35 U.S.C. 112, second paragraph, are withdrawn in view of Applicant's amendments.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13, 24, 28-29 and 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umeda et al. (US 6645646).

Umeda et al. disclose a magnetic recording medium having a ferromagnetic layer, a non-magnetic coupling layer, and a magnetic layer wherein a magnetic bonding layer is provided between the magnetic layer and the coupling layer and between the ferromagnetic layer and the coupling layer (see abstract). The structure taught by Umeda corresponds to the claimed structure as follows:

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substrate/ferromagnetic/magnetic bonding/non-magnetic coupling/magnetic bonding/magnetic
substrate/magnetic stabilizing/ ferromag atom-rich/non-magnetic/...../recording

Umeda teaches that the magnetic bonding layer has a Co or Fe concentration that is higher than that of the ferromagnetic layer and the magnetic layer (col. 4, lines 4-37). The reference is silent with regard to the use of a bonding layer which contains 64-83 at% Co and with regard to the claimed relationship between the exchange coupling of the medium at 64 and 83% Co.

Umeda et al. teach that the relative concentration of Co or Fe in the bonding layer to that in the magnetic and ferromagnetic layers affects exchange coupling between the ferromagnetic and magnetic layers and ultimately affects thermal stability (col. 11, lines 25-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the amount of Co or Fe in the bonding layers taught by Umeda et al. since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 1, 28-29 and 31 require the following limitation:

a magnetic curve of the magnetic recording medium with respect to an external magnetic field exhibits a hysteresis loop, a point, at which a rate of change of magnetization with respect to the external magnetic field exhibits a local maximum when the external magnetic field is lowered after magnetization is saturated, exists in a positive area of the external magnetic field, and an exchange coupling magnetic field, which is an exchange coupling magnetic field, which is determined from the magnetization curve, is not less than 1 kOe

The examiner maintains that Fig 6 of Umeda et al. discloses this claimed feature. Specifically, the Figure shows a “local maximum” which occurs at approximately 1.2 kOe in the “positive area of the external magnetic field.” The distance between this point and the y-axis is a measure

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of exchange coupling and therefore, the Figure discloses an exchange coupling of approximately 1.2 kOe.

In any case, it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the value of the exchange coupling magnetic field (as set forth in claims 1, 28-29 and 31) in view of Umeda's disclosure that increasing exchange coupling effect improves thermal stability (see col. 11, lines 25-28).

Response to Arguments

5. Applicant's arguments filed 8/2/05 and 9/9/05 have been fully considered but are not persuasive.

Applicant argues that Umeda et al. does not teach the newly added limitation directed to specific features of a hysteresis loop of the claimed recording medium. Applicant maintains that this feature of the claimed invention is an unexpected result associated with the claimed Co range of 64-83 at% Co. However, Applicant's arguments do not address the fact that the hysteresis loop shown by Umeda et al. in Fig. 6 shows the claimed features (see other Figures as well for additional examples of hysteresis loops).

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

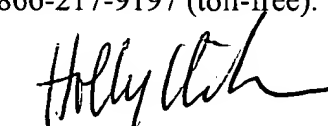
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman
Primary Examiner
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